Weekly Report (2017.8.28-2017.9.3)

TASK	DEADLINE	CURRENT PROGRESS
Visual analysis system of LAN	8.31	Extract data from raw data file and prepare data for structure drawing. Modify the main page of former project and add upload page and logic to the project. Merge the completed modules to the main project. Now the problem is that the project has been overdue, but there are many search and interaction of the graphs need to be done. And current proposed solution is that make correct assessment and plan, and be more efficient.

Done

1) Paper Reading: WhatWould a Graph Look Like in This Layout? A Machine Learning Approach to Large Graph Visualization.

This is the work reported on our group meeting on Friday. I read it in advance, but, because of the lack of knowledge in machine learning, I didn't understand it entirely. However, I have gotten the content of Aesthetic Metrics. Just as follows, crosslessness (Minimizing the number of edge crossings), minimum angle metric (maximizing the minimum angle between incident edges on a vertex), edge length variation (uniform edge lengths), shape-based metric (a more recent aesthetic metric).

2) Extract data from raw data files.

Log data: Firstly, I read the source code of AnalyseEvent which is the tool to extract data from log written with C language. Then I translate it using Javascript and extract time dimension additionally. The extract data is stored in the database table.

fileCreateTime	diaryTime	domainName	userName	IP
2017-04-27 18:41:35.769	10/10/2016 8:48:38	GU	AGARROJ	10.148.66.113
2017-04-27 18:41:35.769	10/10/2016 8:48:08	oozzooo	epardova	172.29.4.82
2017-04-27 18:41:35.769	10/10/2016 8:48:06	oozzooo	epardova	172.29.4.82
2017-04-27 18:41:35.769	10/10/2016 8:47:56	oozzooo	DMunozMo	10.113.100.16
2017-04-27 18:41:35.769	10/10/2016 8:47:56	oozzooo	DMunozMo	10.113.100.16
2017-04-27 18:41:35.769	10/10/2016 8:45:03	oozzooo	edsSistemas	172.29.4.120
2017-04-27 18:41:35.769	10/10/2016 8:44:25	oozzooo	ARUICAM	10.113.73.69
2017-04-27 18:41:35.769	10/10/2016 8:44:01	oozzooo	epardova	172.29.4.136
2017-04-27 18:41:35.769	10/10/2016 8:42:25	oozzooo	lmenciaa	10.113.110.126

DNS data: Extract computer name, IP address and time from DNS files. This data is used to join with log data to draw the relationship graph.

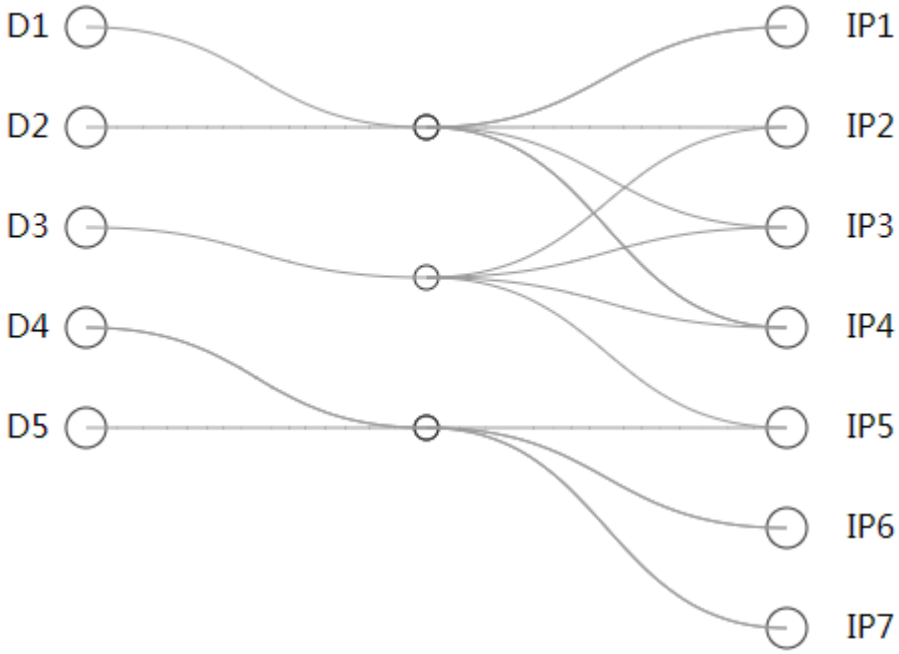
time	computerName	IP
Tue Sep 06 08:06:21 2016 UTC	adminlync	10.113.52.109
Tue Sep 06 08:06:21 2016 UTC	642B862D	10.113.125.37
Tue Sep 06 08:06:21 2016 UTC	AFIBDP1	10.113.57.94
Tue Sep 06 08:06:21 2016 UTC	ADMISP02_NEW	172.32.2.175
Tue Sep 06 08:06:21 2016 UTC	10f8bce	10.132.17.146

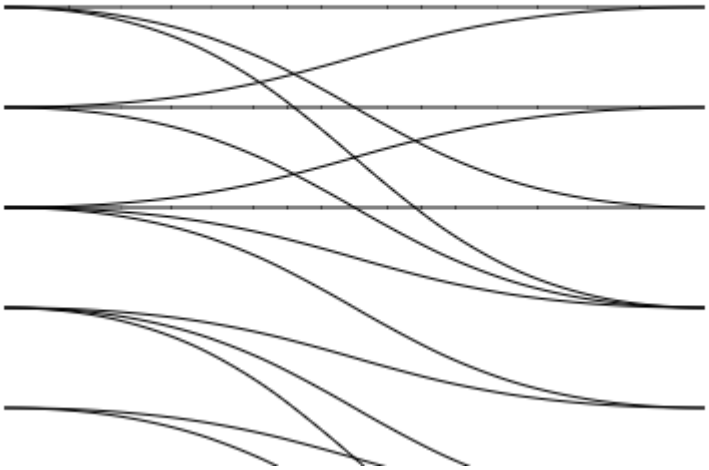
All extract program used the regular expression to match the corresponding words. This is a tool to test the regular expression: http://tool.chinaz.com/regex/

During the extract procedure, I learned a new thought which can make the program be more extensible. When I extract the data, I didn't just extract exactly what I want this time. Instead I formatted the raw data to an object before I get what I want this time. Then I can get whatever I want and I will want in this object very conveniently.

3) Implement the algorithm in the paper which was read last week. The following picture is the result of the algorithm. The upper one is the result of using the algorithm and the under one is not. Minimizing the number of edge crossings, one of the Aesthetic Metrics, is satisfied.

The effect of using this algorithm to our project has not completed yet.





4) Implement the upload file page and function. The former project don't have this part. This part of project need to do with both backend and frontend. And the error is endless.

5) Modify the main page according to the latest design. Code html, css and js logic. A very tedious work taking plenty of time.

6) Add interactive logic to the main page. For example, the linkage of the search panel.

7) Merge part of completed modules to the main project.
8) Have a meeting with Echarts Group. And find what I need to read and think, such as the works related to Vega Lite and the latest API of Echarts, etc.

To Do

1) Finish the development of system as fast as I can.
2) Read the paper related to Vega Lite.